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NOTES ON MELIPHAGIDÆ FROM POLYNESIA AND THE SOLOMON ISLANDS

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In order to understand the relationships and zoögeographical position of several species of honey suckers from the Solomon Islands, I have undertaken a revision of all the Polynesian and Melanesian species of the family. Like every other reviser of this group, I have been confronted by two difficulties: the indistinctness of the color characters in most forms, and the unreliability of structural characters. The first of these two peculiarities of the group makes the task of defining subspecies rather difficult, especially in the olive-colored forms; the second prevents the easy definition of genera. There are not many natural genera, and most of the species have been distributed by some authors over many ill-defined monotypic genera; by others all the species have been united in the single large genus *Meliphaga* (= *Ptilotis*). I have tried to follow an intermediate course, but have not been able to avoid recognizing several monotypic genera.

For the description of colors I have used Ridgway's 'Color Standards.' The measurements used may be defined as follows: "Wing" means length of wing as flattened against the ruler; "tail" means length of the longer of the two central tail-feathers from its emergence from the skin to its tip, measured by dividers; "bill" means (in the present paper only) length of the upper mandible from its tip to the beginning of the lateral feathering, measured by dividers.

AMOROMYZA Richmond

Amoromyza RICHMOND, 1917, Proc. U. S. Nat. Mus., XLIII, p. 593, new name for:

*Leptornis*² PUCHERAN, 1853, 'Voy. Pôle Sud.,' Zool., III, p. 85 (Pl. xvii).

Type (by monotypy): *Leptornis sylvestris* = *Merops samoensis* Hombron and Jacquinot,

¹Previous papers in this series comprise American Museum Novitates, Nos. 115, 124, 149, 322, 337, 350, 356, 364, 365, 370, 419, 469, 486, 488, 489, 502, and 504.

²*Leptornis* Gray, 1849, 'Gen. Birds,' I, p. 124, may be regarded an earlier quotation for this name

preoccupied by *Leptornis* Billberg, 1820, 'Enum. Insect. in Mus. Billberg,' p. 90.

Gummyza MATHEWS, 1925, Bull. Brit. Orn. Club, XLV, p. 93.

Type (by orig. designation): *Merops samoensis* Hombron and Jacquinot.

GENERIC CHARACTERS.—No wattles, coloration plain, bill and feet strong; bill curved, with distinct ridge on the upper mandible; feathers on forehead short, on the chin and upper throat stiff and bristle-like; tail very long.

The genus contains two representative species.

***Amoromyza samoensis* (Hombron and Jacquinot)**

Merops samoensis HOMBRON AND JACQUINOT, 1841, Ann. Sci. Nat. Paris, p. 314, Samoa [terra typica restricta: Upolu] with *olivacea* Peale, 1848, *leptornis* Reichenbach, 1852, and *sylvestris* Pucheran, 1853, as synonyms.

DESCRIPTION.—See Gadow, 1884, 'Cat. Birds,' IX, p. 267. Adult males and females are alike in coloration, but the females are smaller (see measurements). Immature birds are like the adults, but the feathers are softer; the tail-feathers are more pointed, the wing-feathers (especially the first primary) more rounded; underneath and on the head they are less blackish.

Iris brownish gray, bill black, feet blackish gray. Tarsus 45–46, culmen from base 40–47.

		WING	TAIL	BILL ¹
Upolu	10 ♂ ad.	142–154(149.0)	132–140 (136.9)	31–36(32.6)
	4 ♂ juv.	138–142(141.0)	126–131(128.0)	30, 32, 33
	7 ♀ ad.	134–141(136.4)	115–127(121.1)	29–31(30.1)
	1 ♀ juv.	127		30
Savaii	3 ♂ ad.	145, 149, 151	132, 138	32, 34, 34
	1 ♀ ad.	134	119	32
Tutuila	2 ♂ ad.	155, 155	142, 143	32, 35
	1 ♀ ad.	139	120	30

RANGE.—Samoa Islands: Upolu (March, April, 1924), Savaii (May, 1924), and Tutuila (February, 1924).

There is apparently no geographic variation in this species, although the few specimens from Tutuila average slightly larger and are somewhat darker, especially on the head.

Amoromyza viridis

RANGE.—Larger islands of the Fiji group.

***Amoromyza viridis viridis* (Layard)**

Tatara ? viridis LAYARD, 1875, Proc. Zool. Soc. London, p. 150, Taviuni Island.

		WING	TAIL	BILL
Taviuni	5 ♂ ad.			30–33(31.6)
	2 ♂ juv.	132	113	29, 30
	8 ♀ ad.	123–126(124.2)	99, 101	30–32(31.0)
	5 ♀ juv.	118–120(119.0)	97–102(100.2)	28–31(29.2)

¹The bill is measured in all the Meliphagidae from the end of the feathering on the sides of the upper mandible (lower end of nasal groove) to the tip. This is the most exact bill-measurement in this family.

Most specimens molting, or badly worn.

		WING	TAIL	BILL
Vanua Levu	4 ♂ ad.	144-147(145.0)	119-124(120.8)	32, 33, 34
	2 ♀ ad.	124, 125	100, 105	32, 33
	1 ♀ juv.	123	109	32

RANGE.—Taviuni and Vanua Levu, Fiji Islands.

The birds from Vanua Levu are perhaps not identical with Taviuni specimens. I am not sure about this, as my Taviuni specimens are in a badly worn condition, while the Vanua Levu birds are in beautiful, freshly molted plumage. Comparing them in their present condition, the Vanua Levu birds look darker, especially on chin, forehead, around the eye, and on the ear-coverts. Bill and feet seem to be darker also, not as bright yellow as in typical *viridis*, but this may be just a seasonal change. Furthermore, they seem to be slightly larger. But all these differences are much too slight to warrant the naming of the Vanua Levu bird.

***Amoromyza viridis brunneirostris*, new subspecies**

TYPE.—No. 253450, Amer. Mus. Nat. Hist.; ♂ ad.; Viti Levu, Fiji Islands; May 5, 1925; R. H. Beck.

SUBSPECIFIC CHARACTERS.—Similar to *viridis*, but bill and feet blackish brown, sometimes darker, sometimes lighter, not yellow. In young birds more yellowish, only tip brownish. Coloration of plumage is different also, *brunneirostris* having a lighter and brighter olive without the blackish tinge of *viridis*; bill smaller, tail longer.

Iris brown, bill blackish brown, feet yellowish or grayish brown.

	WING	TAIL	BILL
♂ ad.	142-149(144.6)	124-131(127.1)	29-33(30.7)
♂ juv.	130-139(135.5)	114-132(125.8)	29-30(29.8)
♀ ad.	121-135(130.0)	108-120(113.5)	27-29(28.1)
♀ juv.	124, 128	118, 127	28, 29

RANGE.—Viti Levu Island (collected June, Dec., 1924, March, May, Oct., 1925).

MELIPEACATOR Mathews

Meliphacator MATHEWS, 1930, 'Systema Avium Australasianarum,' p. 771. Type (by orig. designation): *Ptilotis provocator* Layard.

GENERIC CHARACTERS.—Bare skinfold around the eye; no wattles, but bare track along the upper throat; lores and forehead densely feathered; bill medium-sized and slightly curved; upper and under surfaces streaked.

Mathews quotes this genus in the 'Syst. Av. Austr.' as being published, in 1925, in the Bull. Brit. Orn. Club, XLV, p. 93. But I find this new genus recorded neither in the place mentioned nor anywhere else.

M. provocator belongs to the large group of species that used to be included in the genus *Ptilotis*, but has to be separated also if such genera as *Xanthotis* and *Foulehaio* are recognized. I therefore adopt the genus *Meliphacator* in spite of its unattractive name.

***Meliphacator provocator* (Layard)**

Ptilotis provocator LAYARD, 1875, Proc. Zool. Soc. London, p. 28, Kandavu Island.

Ptilotis xantophrys FINSCH, 1876, Journ. Mus. Godeffroy, IV, fasc. 12, p. 5, Fiji.

DESCRIPTIONS.—See Layard, *loc. cit.*, p. 28. Males and females alike in coloration. Iris brown, bill black, feet greenish. Tarsus 29–31.

	WING	TAIL	BILL
9 ♂ ad.	101–108	77–82	20–23(21.9)
1 ♂ juv.	101	78	
7 ♀ ad.	85–91	67–71	18–19(18.4)

RANGE.—Only found on Kandavu Island (Fiji).

All these specimens (collected in November, 1924) are extremely worn. The actual measurements are presumably several millimeters higher. I record the measurements of the Whitney series only in order to demonstrate the great difference in size between males and females.

FOULEHAIO Reichenbach

Foulehaio REICHENBACH, 1852, 'Handb. Spec. Orn.,' Abth. II (Meropinæ), I, p. 110. Type (by monotypy): *Philemon musicus* Vieillot = *Certhia carunculata* Gmelin.

Proceriolotes MATHEWS, 1925, Bull. Brit. Orn. Club, XLV, p. 94. Type (by orig. designation): *Ptilotis procerior* Finsch and Hartlaub.

GENERIC CHARACTERS.—Similar to *Meliphaga*, but large bare spot or wattle on the sides of the throat (below the base of the lower mandible); bill medium-sized and slightly curved; base of the bill on forehead densely feathered.

The characters of this genus are not very pronounced, and all of its species were originally described in the genus *Ptilotis*. However, since the very large genus *Meliphaga* (= *Ptilotis*) has been split up into smaller units even by such conservative authors as Stresemann and Hartert, it seems to be justifiable to recognize the genus *Foulehaio*. Furthermore, *Foulehaio* has a distinct likeness to some of the species of *Lichmera*, another rather poorly characterized, but generally accepted, genus of Meliphagidæ, and it is by no means certain that the Australian genus *Meliphaga* is really the next relative to this Polynesian group.

Foulehaio carunculata

RANGE.—Central Polynesia (from Fiji to Samoa).

I consider *procerior* and *carunculata* as conspecific in spite of certain differences in the coloration and in the size of the wattles. They not

only represent each other, but most of the differences are overbridged by the intermediate form *taviunensis* Wigglesworth.

***Foulehaio carunculata carunculata* (Gmelin)**

Certhia carunculata GMELIN, 1788, 'Syst. Nat.,' I, pt. 1, p. 472, Tongatabu.

Philemon musicus VIEILLLOT, 1826, 'Dict. Sci. Nat. (Levrault),' XXXIX, p. 480, Tongatabu.

Ptilotis flavoaurita LAYARD, 1876, Ibis, p. 148, Fotuna Island.

DESCRIPTION.—Male adult as described in 'Cat. Birds,' IX, p. 225. Female adult very similar to male, but smaller and underneath usually more washed with yellowish olive. Juvenal much brighter than the adult. Upperside more olive, black edges of the feathers on the head and blackish centers of the feathers on the back barely indicated; underside, especially middle of abdomen, olive-yellow, on the breast uniformly colored, without the scaly pattern of the adult; wattles on lower cheeks usually shorter.

The bird described as the juvenal by Gadow ('Cat. Birds,' IX, p. 226) is a different subspecies (*procerior*), distributed over the western Fiji Islands. On the other hand, the specimens from Fotuna Island, described by Layard as a different species (*flavoaurita*), is nothing else than the young of this species.

RANGE.—Samoa Islands, Horne Islands, Tonga Islands, and eastern Fiji Islands.

The birds of the range just mentioned do not form a perfectly uniform population. We have here the same difficulty with which I had to deal while describing the geographical variation of *Halcyon chloris santoensis*,¹ *Collocalia esculenta beeki*,² and *Aplonis grandis grandis*.³ Here, again, we have a species (or subspecies) with slight but irregular geographical variation. Certain extremes can be recognized without difficulty, but the majority of the islands are inhabited by intermediates. I think I am doing a better service to my fellow ornithologists by just describing the whole range of the geographical variation than to name the extremes, because it would be impossible to classify the intermediate populations.

In the following discussion I list my material from the different islands, giving remarks about the local size and color variations. Altogether I measured and compared 325 specimens from not less than fifty-seven islands.

¹Amer. Mus. Novit., No. 469, p. 7.

²Amer. Mus. Novit., No. 486, p. 16.

³Amer. Mus. Novit., No. 504, p. 20.

SAMOA GROUP

		WING	TAIL	BILL ¹
Manua Islands	12 ♂ ad.	99-107(104.7)	80-88(83.0)	18-21(19.9)
	3 ♂ juv.	102, 103, 104	83, 83, 83	19, 19, 21
	10 ♀ ad.	92-98(93.8)	73-78(74.9)	17-19(17.8)
	♀ juv.	89-93(90.7)	73-76(74)	17-18(17.2)

Specimens were collected on all three islands (Ofu, Olosega, and Tau) in January, 1924. Due to the season most of the specimens are in a very worn condition or molting.

In comparison with birds from other islands, most of the Manua specimens can be recognized by the following characters²: large and very dark; upperside, upper ear-coverts, lower cheeks (base of bill), throat especially on the sides, blackish; middle of throat not, or very little, whitish; belly dark, strongly washed with olive-gray.

		WING	TAIL	BILL
Tutuila Island	♂ ad.	102-109(105.8)	82-88(85.7)	19-21(20.0)
	♂ juv.	100-104(102.3)	80-88(84.0)	19-20(19.5)
	♀ ad.	91-97(94.4)	73-78(75.5)	16-18(17.3)
	♀ juv.	89-91(90.0)	72-74(73.2)	16.5-17.5(17.0)

Most of the specimens were collected during November, 1923, and are in rather worn condition. A few specimens collected during February, 1924, are freshly molted.

The characters of the Tutuila birds are: large size, very light (whitish) coloration of the middle of the throat and of the lower abdomen; black markings of upperside, lower cheeks and sides of the throat less marked

		WING	TAIL	BILL
Upolu Island	4 ♂ ad.	99-102(100.8)	78-81(79.8)	18-20(19.0)
	1 ♂ juv.	104	79	18
	2 ♀ ad.	90, 93	71, 74	17, 17

Specimens were collected in March and April, 1924. These birds form the brightest population of the species: upperside very olive; ear-coverts, lower cheeks, and sides of throat more olive than blackish; underside conspicuously washed with olive-yellow, including belly, which is not at all whitish as in the Tutuila birds; wattles smaller; size also smaller.

¹The bill here, as in all the other species, is measured from the beginning of the feathering on the base of the nasal operculum to the tip, this being the most accurate measurement.

²All these characters apply to the series. Single specimens can rarely be identified with certainty. This remark applies also to the characters I mention for the populations of the other islands.

		WING	TAIL	BILL
Savaii Island	8 ♂ ad.	93-102(98.5)	76-80(79.0)	19-20(19.5)
	1 ♂ juv.	97	80	19
	6 ♀ ad.	85-92(87.2)	67-73(70.8)	17-18(17.2)
	1 ♀ juv.	87	72	17

The specimens were collected in May, 1924, and are in fresh plumage.

The birds from Savaii Island (which lies west of Upolu) are more similar to the birds from Tutuila (east of Upolu) than to the Upolu series. They are small (even smaller) as the Upolu birds, and have small wattles, but the coloration, although somewhat intermediate, is more like that of the Tutuila birds. Savaii specimens have not the rich yellowish-olive tone on upper and underside that we find in Upolu birds.

	TONGA GROUP		
	WING	TAIL	BILL
♂ ad.	104-114(108.3)	83-92(86.9)	19-22(20.3)
♂ juv.	101-104(102.8)	83-86(84.0)	18-20(19.5)
♀ ad.	92-101(95.6)	72-82(77.9)	17-18(17.7)
♀ juv.	91-96(92.2)	72-79(75.0)	17-18(17.8)

These specimens were collected on the following thirty-seven islands of the Tonga Group (July 6-August 15, 1925): Eua, Tongatabu, Kelelesia, Tonumeia, Lalona, Telekivavau, Fonoifua, Mango, Nomukaiki, Nomuka, Hongahapai, Tofua, Kao, Fotuhaa, Haafera, Teauba, Tongua, Fakahigo, Beabea, Fonuaika, Oua, Unanukuhalagi, Tolanga, Luohoko, Uiha, Uoleva, Haano, Luohoko, Mounagaone, Ofalanga, Vavau, Kapa, Euakafa, Maninita, Late, Toku, and Fanua Lai.

Two specimens (both females) are slightly albinistic on wing and tail.

These birds agree in coloration with Savaii and Fotuna specimens, but are larger. The difference in size is over-bridged, however, by the birds from eastern Fiji and Samoa.

		HORNE GROUP		
		WING	TAIL	BILL
Fotuna	7 ♂ ad.	93-98(95.9)	73-76(74.9)	18-20(19.2)
	2 ♂ juv.	95	71, 74	18, 19
	10 ♀ ad.	82-87(84.2)	63-70(66.1)	16-17(16.8)
	2 ♀ juv.	82, 85	63, 67	16.5, 17
Alofa	2 ♂ ad.	94, 97	73, 76	17.5
	1 ♀ ad.	83	64	16.5
	1 ♀ juv.	85	75	17

Specimens were collected in May, 1925; they are in fresh plumage.

Fotuna birds agree in coloration as perfectly with the Savaii series as birds from different islands can agree; it is impossible for me to find any color differences at all.

When Layard described his *flavoaurita* he had only one juvenal specimen which he compared with *procerior* from the western Fiji Islands instead of with *carunculata*. The only difference between specimens from Fotuna Island and the other parts of the range is that the Fotuna series averages smaller.

EASTERN FIJI ISLANDS				
		WING	TAIL	BILL
Ono ilau	4 ♂ ad.	108-113(110.0)	88-92(89.5)	19-20(19.6)
	2 ♂ juv.	104, 105	84, 88	19.5, 19.5
	2 ♀ ad.	96, 97	80, 81	17, 17
	1 ♀ juv.	91		15
Matuku	2 ♂ ad.	104, 105	83, 84	19, 20
	3 ♀ ad.	87, 89, 92	71, 73, 75	17, 17, 17
SOUTHERN LAU ARCHIPELAGO				
		WING	TAIL	BILL
Ongea Levu	6 ♂ ad.	106-110(107.5)	84-90(87.2)	19-20(19.3)
	1 ♂ juv.	103	86	19
	8 ♀ ad.	89-95(92.8)	70-78(74.9)	16.5-17(16.9)
	1 ♀ juv.	93	79	17
Fulanga	1 ♂ ad.	108	88	19
	1 ♀ ad.	96	80	17
Marambo	3 ♂ ad.	105, 107	87, 88, 90	18, 18, 20
	2 ♀ ad.	94, 95	76, 80	16, 16
	1 ♀ juv.	93	79	16
Mothe	2 ♂ ad.	104, 106	85, 85	19, 20
	1 ♂ juv.	102	84	19
	2 ♀ ad.	96, 98	76, 79	17, 17.5
	1 ♀ juv.	94	78	17
Oneata	1 ♂ ad.	103	82	19
	3 ♀ ad.	93, 93, 96	75, 75, 78	17, 17, 17.5
Aiwa	2 ♂ ad.	105, 106	82, 89	19
	1 ♀ juv.	90	75	17
Lakemba	6 ♂ ad.	107-109(108.2)	88-90(88.8)	19-20(19.8)
	2 ♂ juv.	103, 104	81, 84	19, 20

NORTHERN LAU

ARCHIPELAGO		WING	TAIL	BILL
Naiau	3 ♂ ad.	101, 102, 103	79, 80, 81	19, 19.5, 20
	1 ♂ juv.	101		19.5
Tuvutha	1 ♂ ad.	101	77	18.5
	2 ♂ juv.	97, 100	77, 80	18, 18.5
	5 ♀ ad.	87-91(89.0)	68, 71, 73	16.5-17(16.7)
Vanua Mbalavu	1 ♂ ad.	99	75	19
	1 ♀ ad.	84	66	15.5
	1 ♀ juv.	82	66	16
Yathata	3 ♂ ad.	100, 100, 102	80, 81	18, 18, 19
	1 ♂ juv.	98	79	18
	1 ♀ ad.	88	71	17
Vatu Vara	1 ♂ ad.	100	81	17
	2 ♀ ad.	86, 87	68, 69	16, 16.5

According to size we can arrange the birds from the eastern Fiji Islands into four groups: the birds from Ono ilau (very large), from the southern Lau Archipelago (large), from Matuku (intermediate), and from the northern Lau Archipelago (small).

In coloration these Fiji specimens agree with Tonga birds.

To show the perfect intergradation in the variation of size of the different islands, I will give in one table the wing-lengths of adult males and females.

	MALES	FEMALES
Ono ilau (E. Fiji) ¹	108-113(110.0)	96, 97(96.5)
Tonga Islands	104-114(108.3)	92-101(95.6)
Southern Lau Archipelago (E. Fiji)	103-110(106.9)	89-98(93.9)
Tutuila (Samoa)	102-109(105.8)	91-97(94.4)
Manua (Samoa)	99-107(104.7)	92-98(93.8)
Matuku (E. Fiji) ¹	104, 105(104.5)	87-92(89.3)
Upolu (Samoa) ¹	99-102(100.8)	90, 93(91.5)
Northern Lau Archipelago (E. Fiji)	99-103(100.9)	84-91(87.8)
Savaii (Samoa)	93-102(98.5)	85-92(87.2)
Fotuna Island	93-98(95.9)	82-87(84.2)

At first glance this variation seems to be altogether irregular, but on closer examination it is apparent that birds from islands close to the equator are smaller than the ones from farther south.

Foulehaio carunculata taviunensis (Wiglesworth)

Ptilotis procerior taviunensis WIGLESWORTH, 1891, 'Aves Polynesiae' [Abh. Mus. Dresden, 1890-1891, No. 6], p. 34, new name for *P[tilotis] similis* Layard, 1876, Ibis, p. 148, Taviuni Island [and not *Ptilotis similis* Pucheran 1853].

¹The measured series is too small to show the full range of size-variation.

P[tilotis] buaensis, WIGLESWORTH, 1891, 'Aves Polynesiæ,' p. 35, Vanua Levu Island.

SUBSPECIFIC CHARACTERS.—Similar to *procerior*, but smaller, throat and upper breast grayish, with very little yellow; breast-feathers without blackish shaft streaks, breast almost uniformly colored, without the scaly pattern of *procerior*; malar streak lighter, dark grayish instead of black; patch on sides of neck brighter yellowish olive; bare tract on the sides of the throat ending in a distinct wattle.

		WING	TAIL	BILL
Vanua Levu				
(Feb. 1925)	9 ♂ ad.	95-99(97.4)	74-79(77.3)	19-20(19.6)
	2 ♂ juv.	93, 97	70, 74	18.5
	4 ♀ ad.	86-91(87.8)	65-72(68.8)	16.5-17(16.6)
	3 ♀ juv.	81, 81, 83	62, 66, 66	16, 16, 17
Mathuata				
(Jan. 1925)	6 ♂ ad.	96-102(98.5)	75-81(77.5)	18-20(18.8)
	5 ♀ ad.	87-92(89.4)	67-73(70.6)	16.5-17(16.8)
Yanganga				
(Jan. 1925)	1 ♂ ad.	96	72 (!)	19
	1 ♀ ad.	90	74	17
Taviuni				
(Dec. 1924)	1 ♂ ad.	99	77	18
Kio (Dec. 1924)	1 ♂ ad.	99	76	19
	1 ♀ juv.	85	67	17
Rambi (Dec. 1924)	1 ♀ ad.	92		17
Ngamia				
(Nov. 1924)	2 ♂ ad.	94, 97		19
	1 ♀ ad.	90		17

Wiglesworth thought that the birds from Taviuni were smaller than those from Vanua Levu. However, as Wetmore has already pointed out (1925, *Ibis*, p. 853), there is no difference either in size or in coloration between birds from these two islands.

***Foulehaio carunculata procerior* (Finsch and Hartlaub)**

Ptilotis procerior FINSCH AND HARTLAUB, 1867, 'Fauna Centralpolyn.,' p. 62, Pl. v, fig. 3, Ovalau, Fiji.

DESCRIPTION.—Upperside dull greenish-olive, brighter on back and scapulars, more grayish on rump, feathers with fuscous or blackish centers or shaft-streaks; chin and middle of throat yellowish; feathers of breast pale gray with yellowish edges, giving the breast a scaly appearance; flanks and upper belly pale olive-gray. Middle of belly whitish, crissum and under tail-coverts buffy. From the edges of the lower mandibles along the sides of the upper throat to the ear-coverts runs a bare track, which is bordered above (cheeks) and below (sides of throat) by black feathers. Ear-coverts shining grayish-green. A patch of feathers behind the ear-coverts yellowish olive; sides of neck otherwise colored as hind neck; wings and tail blackish brown with bright olive outer edges. Iris brown, bill black, feet greenish gray. The

female and juvenal differ from the adult male in the same characters as in *carunculata*.

RANGE.—Viti Levu and surrounding islands.

As several authors have doubted the uniformity of the birds I identified as this subspecies, I give in detail the measurements of the birds from the different islands, which show that the averages vary, but as a whole agree fairly well with the size of typical Ovalau birds.

		WING	TAIL	BILL
Ovalau (Oct. 1924,				
March 1925)	4 ♂ ad.	97-105(100.8)	81, 83, 83	20, 21, 21
	1 ♀ ad.	91	78	
	1 ♀ juv.	85	67	17.5
Viti Levu (June				
1924, March-				
June 1925)	9 ♂ ad.	99-106(103.4)	80-85(83.1)	21-22(21.4)
	2 ♂ juv.	94, 96	75, 76	20, 21
	6 ♀ ad.	87-91(89.3)	68-75(71.3)	17.5-19(18.6)
Vatu Leile (Oct.				
1924, March				
1925)	3 ♂ ad.	105, 107	83, 87	20.5, 21, 21
	1 ♂ juv.	97	77	20
	1 ♀ ad.			18
	2 ♀ juv.	86, 89	70, 72	17.5, 19
Kawa-Kawa (Jan.				
1925)	1 ♂ ad.	103	82	20
Nathoulla (Jan.				
1925)	2 ♂ ad.	99, 101	78, 81	21, 22
	1 ♀ ad.	87	70	18
Yasawa (Jan.				
1925)	9 ♂ ad.	99-103(100.9)	76-83(79.7)	20-23(21.2)
	6 ♀ ad.	88-91(89.4)	70-74(71.5)	18(18.0)
Kandavu (Wood-				
Belcher Coll.,				
Sept. 11,				
1923)	1 ♀ (? ♂) juv.	96	75	20

Birds collected in October are very worn; November and December seems to be the molting season; in January the molt is being completed and birds collected during January, February, and March are in beautiful fresh plumage.

The birds from Yasawa Island are not separable from typical *procerior*, although they show a tendency to have the black markings on breast and upperside less pronounced, the flanks and the lower belly lighter, and the yellowish-olive spot on the sides of the neck less marked.

The species has been reported also from Kandavu Island (Ibis, 1876, p. 392), but was not collected there by the Whitney Expedition. I have examined the single skin secured on Kandavu by C. A. Wood (see Ibis, 1925, p. 852), but it is an immature specimen and does not seem to differ from typical *procerior*. Its measurements are recorded above.

MELIARCHUS Salvadori

Meliarchus SALVADORI, 1880, Ann. Mus. Civ. Gen., XVI, p. 75. Type (by monotypy); *Philemon sclateri* Gray.

GENERIC CHARACTERS.—Strong and decidedly curved bill, laterally compressed; base of maxilla bare, BUT A NARROW TRACT OF SHORT BRISTLY FEATHERS CONNECTING NOSTRILS AND LORES. Circumocular space densely feathered; no wattles; feet very strong; tail long, graduated.

Meliarchus sclateri (Gray)

Philemon sclateri GRAY, 1870, Ann. and Mag. Nat. Hist., (4) V, p. 327, Wanga, San Cristobal, British Solomon Islands.

DESCRIPTION.—See 'Cat. Birds,' IX, p. 279, and Salvadori, 1881, 'Ornitologia della Papuasie e delle Molucche,' II, p. 322.

FEMALE.—Like male adult, but smaller.

JUVENAL.—Similar to adult, but more yellowish underneath and on the sides of the head; blackish tones on head and on the sides of the throat reduced, more olive-gray instead of blackish.

"Iris dirty white, eyelid pale blue; bill: base of upper mandible pale green, tip pale olive, under mandible straw yellow; feet silvery blue."

Bill (in adult male) from anterior edge of nostril about 21, from base about 42.

Tarsus: male 37, female 34.

	WING	TAIL	BILL	WEIGHT
♂ ad. ¹	133-140(135.9)	111-119(114.3)	29-31	77-83(80.4)
♂ juv.	118-130(123.2)	101-110(105.5)	27-29	70-74(72.0)
♀ ad.	114-121(118.0)	97-103(100.2)	25-26	50-62(54.7)
♀ juv.	107, 108, 108	89, 91	25	50-54(53.0)

RANGE.—San Cristobal Island, British Solomon Islands.

One series (collected in March, 1927) is in fine, fresh plumage. Other specimens (collected in December, 1929) are either extremely worn or molting.

GUADALCANARIA Hartert

Guadalcanaria HARTERT, 1929 (July), Amer. Mus. Novit., No. 364, p. 8.

Type (by orig. designation): *Guadalcanaria inexpectata* Hartert.

Glyciphila MATHEWS, 1929 (Oct.), Bull. Brit. Orn. Club, L, p. 11.

Type (by orig. designation): *Glyciphila notabilis* Sharpe.

¹One exceptionally small specimen measured 127, 107, 29.

GENERIC CHARACTERS.—Bill long, slender and decidedly curved; no bare spaces or wattles on head; feathers on forehead large and soft; upperside plainly colored, underside more or less streaked.

This genus, in its original description, was based mainly on negative characters, not having naked wattles or a bare skinfold behind the gape. Aside from its coloration, it agrees very well with "*Glycifohia*" *notabilis*, the only difference being that *notabilis* has a relatively longer and more curved bill and a shorter tail. As positive characters for his new genus, Hartert mentions the long bill and the yellow tufts on the sides of the neck, as compared with members of the genus *Meliphaga*. I compared a series of *Meliphaga virescens sonoroides* (from New Guinea), which is close to *lewini*, the type species of the genus *Meliphaga*, with *Guadalcanaria* and found that the difference in the relative size of the bill is not as conspicuous as one would expect after Dr. Hartert's remarks. In *Meliphaga virescens* the bill is twenty-five per cent of the wing-length, in *Guadalcanaria inexpectata* twenty-eight per cent. Naturally *G. inexpectata* has a long bill, being a large bird, but the difference in relative size is only slight. The other character mentioned by Dr. Hartert, the tuft of yellow feathers on the side of the neck, does not seem to be of great importance either. We find in *G. notabilis* Sharpe, as well as in several species of *Meliphaga*, a tuft or spot of white feathers in the same place. Furthermore, this character often varies geographically as in *Xanthotis polygramma* from New Guinea. However, there is one character which separates *G. inexpectata* and *notabilis* from *Meliphaga*, that is the feathering of the forehead. In *Meliphaga* the basal part of the bill is covered by short and rather stiff feathers, in *Guadalcanaria* the feathers on the forehead are large and soft and do not extend over the basal part of the bill. This difference is particularly striking when we compare the measurements of the whole length of the bill (from the base of the forehead) with the length of the exposed culmen.

Guadalcanaria inexpectata Hartert

Guadalcanaria inexpectata HARTERT, 1929, Amer. Mus. Novit., No. 364, p. 8, Guadalcanar, British Solomon Islands.

	WING	TAIL	BILL ¹	CULMEN ²
2 ♂ ad.	110, 113	90, 92	24.5, 25	31, 32
6 ♂ imm. ³	105-106(105.8)	79-89(86.0)	24-25(24.7)	30-31.5(30.7)
4 ♀ imm.	94-98(95.8)	74-80(77.8)	22-23(22.5)	27-29 (28.2)

¹Measured as the other species (see footnote, p. 2).

²From base of forehead.

³Including type.

RANGE.—Known only from Guadalcanar Island (collected July 20–27, 1927).

Dr. Hartert does not mention in the original description that most of the birds are in immature plumage. These immature birds are rather similar to the adults, but smaller and less distinctly streaked underneath; the tufts on the side of the neck are of a paler yellow, the tail-feathers narrower and softer toward the tip, the first primaries longer, broader and more rounded, and the wing-coverts much softer and more woolly. Some specimens have already acquired the body plumage of adult birds, but still retain the immature wing and tail.

Guadalcanaria notabilis

DISTRIBUTION.—Banks Islands and northern New Hebrides.

Guadalcanaria notabilis notabilis (Sharpe)

Glyciphila notabilis SHARPE, 1899, Bull. Brit. Orn. Club, X, p. xxix (also Ibis, 1900, p. 365), Vanua Lava, Banks Islands.

Glycifohia gonada MATHEWS, 1929, Bull. Brit. Orn. Club, L, p. 11 (new name for *Glyciphila notabilis* Sharpe, and not *Stigmatops notabilis* Finsch, 1898, Notes Leyden Mus., XX, p. 130, Wetter Island) (*sic!*).

SUBSPECIFIC CHARACTERS.—Back and rump rufescent, without distinct olive feather-edges; edges on wing-coverts dark rufous-brown; malar stripe, cheeks, and ear-coverts blackish with small white feather-tips; feathers on forehead and superciliary region black with not very broad white tips.

		WING	TAIL	BILL
Banks Islands	10 ♂ ad.	86–90(88.5)	69–73(71.4)	26.0
	1 ♂ juv.	89	71	26
	9 ♀ ad.	81–84(82.2)	66–69(67.7)	24–25(24.4)
Aoba Island	5 ♂ ad.	85–89(87.0)	72–77(74.5)	26–27(26.6)
	1 ♂ juv.	87	71	24
	6 ♀ ad.	79–82(81.0)	68–70(69.0)	25.0
Santo Island	4 ♂ ad.	90–95(91.8)	76, 77, 80	26–28(27.2)
	1 ♀ ad.	84	72	26

RANGE.—Banks Islands (Vanua Lava and Bligh Island) (collected November, 1926) and northwestern New Hebrides (Aoba Island, collected January, 1927, and Santo Island, collected December 1926).

November specimens are very worn and beginning to molt; December specimens are in full molt; and January birds are in fresh plumage or near the completion of the molt.

In coloration the birds of the four islands agree very well, but there are some differences in size and proportion as shown in the table of measurements. The birds from the Banks Islands are not only smaller,

but have a relatively shorter tail. The Aoba birds are intermediate in proportions between the birds from Banks Islands and Santo Island. I do not consider these differences important enough to split the birds of the range (as outlined above) into subspecies.

Mathews introduced a new name for *Glyciphila notabilis* Sharpe, pretending it was preoccupied by *Stigmatops notabilis* Finsch, thereby adding another name to the growing list of Mathewsian synonyms.

Guadalcanaria notabilis superciliaris, new subspecies

TYPE.—No. 212878, Amer. Mus. Nat. Hist.; ♂ ad.; Epi Island, New Hebrides; August 4, 1926, R. H. Beck and J. G. Correia.

SUBSPECIFIC CHARACTERS.—Similar to *notabilis*, but only hind neck rufescent, feathers of scapulars, back, and rump with olive-brown edges; wing-coverts edged with olive-cinnamon; malar stripe and lower cheeks white, only base of feathers black; lores, feathers behind the eye, and ear-coverts black, some of the ear-coverts with very narrow white tips; pileum black, only on forehead with white tips; superciliary stripe very distinct, feathers with broad white tips.

FEMALE.—Similar to male, but smaller.

JUVENAL.—Rather different from adult. All feathers on upperside with light shaft-streaks and dark edges, giving the bird a streaked appearance; superciliary stripe creamy white, feathers on lower throat and breast with narrow dusky edges, feathers on breast, abdomen, and flanks without distinct blackish shaft-streaks; belly washed with pale yellowish, in some specimens also throat, cheeks, and bend of wing washed with yellowish; wing-coverts with broad buffy-cinnamon or olive-cinnamon edges.

Iris brown, bill black, feet bluish.

	WING	TAIL	BILL
♂ ad.	88-94(91.1)	73-80(76.7)	26-29(27.5)
♂ juv.	86-90(87.5)	71-75(72.8)	24-28(26.5)
♀ ad.	80-87(84.6)	64-74(71.4)	25-26.5(25.6)
♀ juv.	81-83(82.2)	67-72(69.2)	25-26(25.3)

RANGE.—New Hebrides (Epi, Pauuma, Ambrym, Malekula, Pentecost, and Aurora).

Specimens from the six islands mentioned above agree fairly well in coloration, size, and proportions. The size of the Pauuma and Malekula specimens is slightly above average, of those from Pentecost, Aurora, and Epi below average. Aurora birds have rather short tails; however, all these differences lie within the range of possible individual variation.

The discovery of this new subspecies in the New Hebrides extends the range of this rare species considerably. Apparently the type was the only specimen of this species hitherto known.

LICHMERA¹ Cabanis

Most of the species of this genus are distributed over the islands west of New Guinea, and not having sufficient material from there, I am unable to define this genus.

Lichmera incana

RANGE.—New Caledonia, Loyalty Islands, and New Hebrides.

Lichmera incana flavotincta (Gray)

Glyciphila flavotincta G. R. GRAY, 1870, Ann. and Mag. Nat. Hist., (4) V, p. 331, Erromanga, New Hebrides.

SUBSPECIFIC CHARACTERS.—Larger than *incana* (♂, 73–74, ♀, 66) (see measurements); on the throat more grayish, and on breast and neck less brownish, some specimens almost indistinguishable.

Male and female are practically alike in coloration, but females smaller; immature birds have a softer plumage and are more yellowish olive, without the scaly pattern on breast and throat. The description and the picture of the type suggest a young bird, but Mr. N. B. Kinnear assures me that the type has not the characters of a young bird.

Males, 90 per cent; females, 10 per cent.

		WING	TAIL	BILL
Efate	8 ♂ ad.	76–79(77.8)	60–66(63.8)	18–20(18.9)
Mai	10 ♂ ad.	75.82(78.7)	62–69(66.0)	18–20(19.1)
Tongoa	3 ♂ ad.	74, 75, 79	62, 63, 67	17, 17, 18
Lopevi	6 ♂ ad.	77–80(78.5)	63–68(66.0)	18–20(18.8)
Pauuma	2 ♂ ad.	76, 78	66	18.5, 19
Ambrym	1 ♂ ad.	77	64	19.5
Malekula	3 ♂ ad.	76, 78, 79	62, 63, 65	18, 18, 18
	3 ♂ juv.	73, 75, 75	60, 61, 61	1 ⁸ , 19
	4 ♀ ad.	69–73(71.2)	59, 59, 59	16.5, 17, 17

RANGE.—Southern and central New Hebrides (Erromanga, Efate (= Vate or Vela), Makura, Mai, Tongoa, Epi, Lopevi. Pauuma, Ambrym, and Malekula).

There are no differences in coloration between birds from the various islands, and the differences of size in the averages are very slight.

I am much indebted to Mr. N. B. Kinnear for much valuable information about the British Museum material of this species, and for notes about the differences between *incana* and *flavotincta*.

Lichmera bougainvillei, new species

TYPE.—No. 221797, Amer. Mus. Nat. Hist.; ♂ ad.; Bougainville Island, Solomon Islands; January 13, 1928; F. P. Drowne.

¹*Stigmatops auctorum*.

MALE ADULT.—Forehead grayish, with dark (blackish-brown) centers; feathers of crown blackish brown with broad olive edges; feathers of neck, scapulars, back, and rump light brownish-olive (R. XXX), centers of feathers more brownish, edges more olive; lores, cheeks, and superciliary region dull grayish-olive; lower cheeks dark grayish, chin and upper throat light grayish; ear-coverts and sides of neck grayish olive; lower throat light olive-gray; breast and belly gray, feathers with pale olive edges; flanks and lower belly dull buffy-olive; wing-feathers, wing-coverts and tail-feathers dark brown with olive edges; axillaries buffy gray.

FEMALE ADULT.—Similar to male adult, but smaller.

JUVENAL (male and female).—Feathers softer, less grayish, above and below more olive.

Iris brown, bill black, feet bluish gray.

Bill from base (♂ ad.) 30–32.5, tarsus (♂ ad.) 27–28.

	WING	TAIL	BILL
13 ♂ ad.	91–94(92.0)	69–73(70.8)	24–26(24.3)
6 ♂ juv.	83–88(85.8)	62–69(65.0)	20–24(22.3)
6 ♀ ad.	83–87(82.2)	64–67(66.0)	24–25(24.2)
2 ♀ juv.	80, 81	62, 63	23, 23

RANGE.—Mountains of Bougainville Island, Solomon Islands (December, 1927, January, 1928; Drowne, Hamlin and Richards).

I include this isolated species rather reluctantly in the genus *Lichmera*. It lacks the silvery or whitish tips to the postocular feathers and ear-coverts, which are so pronounced in most species of *Lichmera*. However, *bougainvillei* agrees better with *Lichmera* than with any other genus of Meliphagidae in proportions of bill, wing and tail, and in its type of coloration. The species has no character that would justify the erection of a new genus.

MYZOMELA Vigors and Horsfield

Myzomela VIGORS AND HORSFIELD, 1827, Trans. Linn. Soc. London, XV, p. 316.

Type (by original designation): *Meliphaga cardinalis* Vigors and Horsfield) = *Certhia dibapha* Latham.

GENERIC CHARACTERS.—Small size; long, slender, well-curved bill; no wattles, no ear-tufts; most forms beautifully colored and with well-pronounced sexual dimorphism.

RANGE.—New Guinea (9 species!) eastward to Central Polynesia (Samoa), southward to New Caledonia and Australia, westward to Timor, Tenimber, Moluccas, and Celebes, and northward to Micronesia (Palau, Guam, and Carolines).

Myzomela jugularis Peale

Myzomela jugularis PEALE, 1848, 'U. S. Explor. Exped.,' Birds, p. 150, Vanua Levu, Fiji Islands.

Myzomela solitaria PUCHERAN, 1853, 'Voy. Pôle Sud.,' Zool. III, p. 99, (Pl. xxii, fig. 6), "Solomon Islands," error for Fiji Islands.

MALE ADULT.—Large patch on occiput and hind neck, lower back, rump, and tips of upper tail-coverts brilliant carmine. Chin and uppermost throat dull carmine, sometimes separated from orange of lower throat by an indistinct blackish band; forehead, forepart of crown, sides of head, sides of neck, back, scapulars, wings, and tail black; median and greater wing-coverts with white tips; greater wing-coverts and wing-feathers edged with olive; central tail-feathers with small, outer with larger white tips. Lower throat and breast orange, sometimes with a distinct reddish tinge; rest of underside yellowish-white. Axillaries, under wing-coverts and inner edges of wing-feathers white. Color of lower throat and upper breast, width of black band between upper and lower throat, and size of white spots on tail and wing-coverts varying individually.

FEMALE ADULT.—Similar to adult male, but duller; black on back more sooty; red patch on throat and nape smaller and less brilliant; orange-yellow on lower throat duller and paler.

IMMATURE PLUMAGE (first-year plumage).—Male: chin and upper throat red, lower throat mixed blackish and pale yellowish; upperside blackish olive; exceptionally some red feather-tips on nape and rump ("Fortschrittskleid"). Female: similar to immature male, but red patch on upper throat smaller; lower throat duller, less yellowish; never any reddish tips on nape and rump.

NESTLING PLUMAGE (juvenal).—Male and female: no red in plumage; the back is sooty black, slightly washed with brownish olive on lower back, rump, and upper tail-coverts; throat and breast are dirty grayish-olive, the rest of the underside is pale olivaceous-white.

Apparently shortly after leaving the nest, this plumage is changed into the first-year plumage, by a partial molt in which wing- and tail-feathers do not take part.

Iris brown, bill black, feet grayish or blackish.

Bill: 15–16 (♂ ad.), 14–15 (♀ ad.); bill from base 17–21; tarsus 16–18.

	WING	TAIL
♂ ad.	59–65(62.9)	37–41(39.2)
♂ imm.	57–62(60.2)	
♀ ad.	57–61.5(58.7)	35–37(35.8)
♀ imm.	55.5–60(57.8)	

RANGE.—Fiji Islands (material from forty-two islands examined).
Turtle Island (June, 1925).

Southern Lau Archipelago (Aug., Sept., 1924): Ongea Levu, Fulanga, Kambara, Wangava, Tavunasithi, Yangasa, Namuka Ilau, Mothe, Komo, Olorua, Oneata, Lakemba.

Northern Lau Archipelago (September, 1924): Thithia, Katafanga, Mango, Thikombia Ilau, Vanua Mblavu.

South-Central Fiji Islands (July, 1924); Matuku, Totoya, Moala, Vanua vatu.

Vanua Levu group (Oct., 1924 to Feb., 1925): Rambi, Namena, Koro, Makongai, Wakaya, Mbatiki.

Viti Levu (June, 1924), Ovalau (Oct., 1924).

Yasawa group (January, 1925): Waia, Viwa, Naviti, Matathoni, Nathoulla, Yasawa, Yanuya, Monariki (near Malolo).

Kandavu group (Oct., Nov., 1924): Kandavu, Yankuve, Ndravuni, Vanuakula.

Myzomela jugularis is a distinct species which has, apparently, no close relatives. As in most species of *Myzomela*, the males are far more numerous in the collection than the females. In the large series at my disposal there are 82.5 per cent males and only 17.5 per cent females. As the sexual dimorphism in this species is only slight, this percentage can not be explained by the assumption that the collector picked out the highly colored males. As a matter of fact there were collected one and a half times as many plainly colored immature males than adult and immature females combined. The same phenomenon (numerical predominance of males) is shown in all the species and subspecies of *Myzomela*, treated in the following pages.

Myzomela cardinalis

RANGE.—From central Polynesia to New Caledonia, the eastern Solomon Islands, and Micronesia.

Most of the forms, treated in the following pages as subspecies of *cardinalis*, have been described originally as full species, and have been treated as such by the majority of the recent authors, on account of their distinct characters. On the other hand, all these black and red *Myzomela* of Polynesia, Melanesia, and Micronesia, form a fairly uniform group which stands out clearly against the other species of *Myzomela* that live in the Papuan region and elsewhere. I consider it, therefore, more convenient to unite all the representative black and red *Myzomela* of the western Pacific into one species.

***Myzomela cardinalis chermesina* Gray**

Myzomela chermesina GRAY, 1846, 'Gen. Birds,' I, Pl. xxxviii, no locality (= Rotuma Island).

PLUMAGES.—Adult male: throat, breast, sides of breast, flanks, middle of back, and upper tail-coverts scarlet red; rest of the plumage black.

IMMATURE MALE (first-year plumage).—Similar to adult male, but duller throughout; blackish feathers of forehead and forepart of crown sometimes washed with dark reddish; primaries and secondaries edged with olive; wing-coverts edged with brownish olive; red underneath reduced and lighter; red feather-tips on lower throat, and upper breast, very much reduced, sometimes entirely absent. The reddish upper throat is, in this case, divided from the lower breast by a black throat-band; middle of abdomen, lower flanks and under tail-coverts pale cinnamon-gray; first primary round with broad outer web.

ADULT FEMALE.—Above similar to adult male, but red on back reduced, and on rump and upper tail-coverts lighter and less brilliant; wings and wing-coverts with narrow grayish-olive edges; upper throat with some reddish feather-tips; lower throat and upper breast brownish black with a slight red wash; lower breast and upper abdomen reddish scarlet with brownish-gray or brownish-black feather-bases; lower abdomen, flanks and under-tail-coverts dull cinnamon-gray or brownish black.

IMMATURE FEMALE.—Similar to adult female, but blackish parts more brownish and underside strongly washed with pale cinnamon-gray or rufous.

Bill from base (♂ ad.) 19–20; tarsus (♂ ad.) 21.5–22.

Males, 65.1 per cent; females, 34.9 per cent.

	WING	TAIL	BILL
16 ♂ ad.	76–79(77.3)	53–57(54.3)	16
11 ♂ imm.	74–76(74.8)	48–51(50.0)	15–16
8 ♀ ad.	67.5–73(70.4)	45–51(48.4)	13.5–15(14.1)
7 ♀ imm.	67–71(68.8)	45.5–49(47.6)	14–14.5(14.2)

RANGE.—Rotuma Island (260 miles northwest of Fiji). All the other localities given for this bird, as New Guinea, New Hebrides, and Carolines, are erroneous.

In this subspecies, as well as in the following ones, I have described the plumages in detail, because they have been very insufficiently known heretofore, and a great amount of the information published up to the present time (for example, in the 'Catalogue of Birds') is misleading.

***Myzomela cardinalis nigriventris* Peale**

Myzomela nigriventris PEALE, 1848, 'U. S. Explor. Exped.,' Birds, p. 150, Upolu Samoa.

MALE ADULT.—Head (except lores and circumocular feathers which are black), hind neck, throat, upper breast, middle of back, rump and upper tail-coverts scarlet-red; rest of plumage black; inner edges of wing-feathers white.

FEMALE ADULT.—Crown, hind neck, and back blackish with an olive tinge; some feathers in the middle of the back, rump and upper tail-coverts brilliant scarlet-red; underside grayish olive, paler on the middle of the belly, flanks, and under tail-coverts; tips and lower part of the inner web of the tail-feathers whitish; edges of wing-feathers olive.

MALE IMMATURE (first-year plumage).—Head and throat scarlet; hind neck and back sooty black, with a few scarlet feather-tips; rump and upper tail-coverts scarlet; breast olive-gray, middle of belly whitish (-olive); lower belly, flanks, and under tail-coverts dull rufous-olive.

FEMALE IMMATURE (first-year plumage).—Crown dull scarlet, feathers on upper throat with pale scarlet tips; upperside blackish olive; underside (olive-) gray, lighter on belly; rump brownish, feathers with reddish tips.

MALE JUVENAL (nestling).—Hind neck, scapulars and back sooty; rump brownish gray (hair-brown); breast dull buffy-gray; middle of belly whitish gray, lower belly and flanks dull cinnamon-gray; feathers of crown, sides of face, chin and upper throat with reddish tips; some rump-feathers also with reddish tips.

Bill from base (♂ ad.) 19.5–20, tarsus (♂ ad.) 18–19.

Males, 79 per cent; females, 21 per cent.

It is strange that the adult female has less red in her plumage than the young one. However, there is no doubt that the sequence of plumage is correct as outlined above. Several of the immature females are molting, and the new feathers on the head are blackish, as we should expect.

	WING	TAIL	BILL
♂ ad. (series)	66–70.5(68.2)	42–46(44.0)	16–17(16.7)
2 ♂ imm.	66, 67.5	40, 40.5	15, 15.5
7 ♀ ad.	61.5–64(62.7)	38–42(39.7)	15.5–16.5(15.9)
6 ♀ imm.	60–63(61.6)	37–40(38.8)	15–16(15.2)

RANGE.—Samoa Islands: Tutuila (October, 1923–February, 1924, very worn or molting); Upolu (March, April, 1924, fresh or still partly molting); and Savaii (May, 1924) (fresh or molt nearly completed).

Specimens from Tutuila have a slightly lighter, more scarlet-red; but, as the specimens are very worn, I attribute this difference in coloration to bleaching.

***Myzomela cardinalis cardinalis* (Gmelin)**

Certhia cardinalis GMELIN, 1788, 'Syst. Nat.,' I, p. 472, Tanna.

Myzomela melanogastra BONAPARTE, 1853, Compt. Rend., XXXVIII, p. 263, Tanna.

Myzomela splendida TRISTRAM, 1879, Ibis, p. 191, Tanna.

MALE ADULT.—Head (except lores and circumocular feathers), neck, chin, throat, upper breast, middle of back, rump and upper tail-coverts scarlet-red; rest of the plumage black, inner edge of wing feathers whitish.

MALE IMMATURE.—Underside buffy grayish, with olive tinge; lighter on the middle of the belly, darker on breast and sides of breast; upperside much darker, olive-gray, more rufous towards the rump; feathers on crown, sides of head, chin, upper throat, and middle of back, sometimes also on neck, rump, and upper tail-coverts with more or less broad scarlet tips; primaries edged with olive, secondaries and wing-coverts with cinnamon or rufous olive.

FEMALE ADULT.—Similar to immature male, but generally darker; scarlet coloration duller and paler and reduced to chin, uppermost throat, and forepart of crown; in some specimens there are a few red tips on the feathers of hind neck, middle of back and rump.

FEMALE IMMATURE.—There is no definite difference between adult and immature females; usually the immature specimens can be recognized by having a softer, less compact plumage, a rounder first primary, the wing-coverts edged with buff instead of buffy olive and by having less red in the plumage, especially on throat and back.

♂ ad.	WING	TAIL	BILL
Aneiteum	72, 75	50, 51	
Efate	69-74(71.0)	47-50(48.6)	17-18.5(17.9)
Epi	66-71(68.2)	44-48(46.2)	
Gaua	67.5-72(69.7)	45-48(46.7)	
Tucopia	68	48	15.5

Birds from the southern New Hebrides are slightly larger than those from the northern New Hebrides and Banks Islands.

	WING	TAIL
♂ imm.	64.5-70(67.1)	41.5-45.5(43.1)
♀ ad.	61-66(63.1)	39-44(41.3)
♀ imm. (?)	59-63(61.2)	39-41(39.9)

These measurements are taken from birds of the entire range.

Bill from base (♂ ad.) 20.5-22, tarsus (♂ ad.) 19-20.

Males, 82 per cent; females, 18 per cent.

RANGE.—New Hebrides (specimens examined from Aneiteum, Efate, Nguna, Mau, Masaso, Makura, Mai, Tongariki, Tongoa, Epi, Lopevi, Pauuma, Ambrym, Pentecost, Aurora, Malekula, Malo, Santo, Aoba).

Banks Islands (specimens examined from Gaua, Valua, Bligh, Meralav, Vanua Lava).

Tucopia Island.

Specimens (especially young birds) from the northern islands (Pentecost, Aoba, and Banks Islands) usually have less red in the plumage than birds from the southern islands (Aneiteum to Epi), but some birds are indistinguishable. The only specimen from Tucopia has even less red on upper breast and hind neck than specimens from the northern New Hebrides and Banks Islands, but more material has to be examined to decide upon the constancy of this character. In size there is also some slight geographical variation. Birds from the southern New Hebrides are the largest, birds from the central New Hebrides (Epi and neighboring islands) are smallest, while the birds from the northern New Hebrides and Banks Islands are intermediate in size. However, these differences are too slight to justify the naming of new races.

South of the New Hebrides the species is represented by *caledonica* Forbes (New Caledonia) and *lifuensis* Layard (Loyalty Islands).

***Myzomela cardinalis sanctaecrucis* Sarasin**

Myzomela rubrata sanctaecrucis F. SARASIN, 1913, 'Vögel Neu-Caledoniens,' p. 75, Santa Cruz Island, Santa Cruz Group.

MALE ADULT.—Head, middle of back, rump, upper tail-coverts, upper abdomen, breast, flanks scarlet; middle of belly, under tail-coverts, scapulars, wings, and tail black; lores and sometimes chin and frontal feathers also black.

MALE IMMATURE.—Upperside grayish olive-brown, some feathers on the back, more sooty; feather-tips on forehead and forepart of crown, middle of back, rump, and upper tail-coverts scarlet; hind neck and sides of neck washed with dirty brownish-red; chin, throat, cheeks, and ear-coverts scarlet-red; breast and flanks scarlet; abdomen grayish yellow with a pink wash; sides of throat olive-brown; wing-coverts blackish with rufous-olive edges; wing-feathers with olive outer, and whitish inner edges; axillaries yellowish white.

FEMALE ADULT.—Head and neck fuscous olive, on the forehead strongly, otherwise slightly washed with dark reddish; scapulars and back darker, more sooty; some feathers on the middle of the back with narrow, all feathers on rump and all upper tail-coverts with broad scarlet tips; underside yellowish or olive-gray, darker on the breast, chin, throat, and breast washed with reddish; wing, wing-coverts, and tail edged with olive.

FEMALE IMMATURE.—Apparently not different from the adult. The bird described as juvenal by Sarasin (*loc. cit.*, p. 75) is a female.

Bill from base (♂ ad.) 20.5–21, tarsus (♂ ad.) 20–21.

Males, 81.8 per cent; females, 18.2 per cent.

		WING	TAIL	BILL
Torres Islands	♂ ad.	73	48	17.5
Vanikoro		72–78(74.8)	48–51.5(49.9)	17.5–18.5(18.0)
Utupua		72–76(74.1)	48–51(49.8)	
Santa Cruz		75–78(76.2)	50–53(52.0)	18–19(18.2)
Reef Islands		75–79(76.8)	49–53(51.3)	
Duff Islands		74–79(76.6)	49–54(51.7)	
	♂ imm.	72–74(73.0)	47–48(47.2)	
	♀	64–69(66.2)	41–47(43.3)	

RANGE.—Torres Islands (Lo, Hiu) (November, 1926). Santa Cruz Islands (Vanikoro, Utupua, Santa Cruz) (September, October, 1926, February, 1927). Reef (or Swallow Islands) (Nupani, Fenualoa, Lomlom) (October, 1926). Duff Islands (Disappointment Islands, Treasurers Island) (October, 1926).

There is no difference between the birds from the various localities. The single male and female from the Torres Islands also agree with typical *sanctæcrucis*, although the Banks Islands, inhabited by *cardinalis*, are much nearer than Santa Cruz.

***Myzomela cardinalis sanfordi* Mayr**

Myzomela cardinalis sanfordi MAYR, 1931, Amer. Mus. Novit., No. 486, p. 27, Rennell Island.

Males, 80 per cent; females, 20 per cent.

Description and measurements are given in Amer. Mus. Novit., No. 486, pp. 27–28.

RANGE.—Rennell Island.

***Myzomela cardinalis pulcherrima* Ransay**

Myzomela pulcherrima RAMSAY, 1881, Proc. Linn. Soc. N. S. W., VI, p. 179, Ugi, Solomon Islands.

MALE ADULT.—Similar to *sanctæcrucis*, but red darker, less brilliant; red tips of feathers narrower; primaries with distinct olive edges.

MALE IMMATURE.—Above like adult male, but red and black colors duller; throat red, rest of underside olive-gray, with pale reddish feather-tips or only with a red wash; wing-coverts edged with reddish olive, primaries with olive.

FEMALE ADULT.—Head, throat, middle of back, rump, and upper tail-coverts red; scapulars and sides of breast sooty or sooty olive; underside grayish olive, breast, upper abdomen, and flanks more or less strongly washed with red; wing-coverts and wings edged with olive.

Bill from base (♂ ad.) 20–21.5, tarsus (♂ ad.) 19–20.

Males, 68.8 per cent; females, 31.2 per cent.

	WING	TAIL	BILL	WEIGHT
9 ♂ ad.	70–74(71.6)	44.5–47(45.9)	17–18(17.5)	13–16(14.6)
1 ♂ imm.	69	43	17	
1 ♂ ad.				
(? hybrid)	72	47	17.5	
5 ♀ ad.	63–65.5(64.0)	38–41(39.8)	15–16(15.5)	13

Two females from Ugi Island seem to have the red on the flanks extended lower than the three females from San Cristobal, but otherwise they are absolutely alike.

RANGE.—San Cristobal (=Bauro) (April, 1927, December, 1929) and Ugi Island (April, 1927), British Solomon Islands.

There is one unusual specimen in the series from San Cristobal (No. 218332, collected April, 6, 1927). Its general color is black, but the black feathers have sombre red tips on head, throat, ear-coverts, middle of back, rump, and upper tail-coverts, also some very narrow reddish tips on the feathers of breast and flanks; the axillaries and under wing-coverts are light gray.

There are two ways to explain the coloration of this specimen: either it is a melanistic phase, or a hybrid between *Myzomela cardinalis pulcherrima* and *Myzomela nigrita tristrami*.

In favor of the hybrid possibility is the fact that there is no other melanistic specimen of *Myzomela* in the large series of the Whitney Collection from all Polynesia but this one blackish specimen from the only island where the ranges of *cardinalis* and *nigrita* overlap.

There are no other characters that distinguish *cardinalis* and *nigrita*, except coloration; the measurements overlap (see also p. 29).

***Myzomela cardinalis malaitæ* Mayr**

Myzomela cardinalis malaitæ MAYR, 1931, Amer. Mus. Novit., No. 504, p. 25, Malaita Island.

DESCRIPTION AND MEASUREMENTS.—See Mayr, *loc. cit.*, p. 25.

Males, 81.2 per cent; females, 18.8 per cent.

RANGE.—Malaita, British Solomon Islands.

This remarkable subspecies somewhat approaches *Myzomela lafargei* and allies from the western Solomon Islands in its pattern of coloration.

In Micronesia live *Myzomela cardinalis rubratra* (Lesson) and allied forms.

SUPERSPECIES *Myzomela lafargei*

There are three closely related representative species of *Myzomela* in the Solomon Islands that could be considered as subspecies of one species: *melanocephala*, *lafargei*, and *eichhorni*. However, one of them (*eichhorni*) is divided into several subspecies. Furthermore, each of them has rather distinct peculiarities of pattern and coloration. I prefer therefore to keep them specifically separated, but unite them in one superspecies.

***Myzomela lafargei* Pucheran**

Myzomela lafargei PUCHERAN, 1853, 'Voy. Pôle Sud,' Zool., III, p. 98 (Pl. xxii). [Ysabel Island] Solomon Islands.

MALE ADULT.—Forehead, forepart of crown, sides of head, chin, throat, back, scapulars, rump, and upper tail-coverts black; large patch on hind neck red, some feathers on rump and upper tail-coverts also sometimes reddish; underside (except throat) golden olive, duller on flanks, lower belly, and under tail-coverts. Outer edge of wing-coverts and wing-feathers olive-ocher; inner edge of wing-feathers, under wing-coverts and axillaries white; some specimens have reddish tips on the black rump-feathers.

FEMALE ADULT.—All the plumage olive, only chin and cheeks with a reddish tinge; upperside much darker, centers of the feathers on the crown blackish; back, scapulars, and rump brownish olive, throat fuscous olive, rest of underside yellowish to ocher-olive.

MALE IMMATURE.—Upperside blackish, grayish or brownish with olive tinge, very dark; forehead and crown dark red; chin, upper throat, cheeks and sometimes ear-coverts washed with cherry red; underside orange or ocher-olive, duskier on the throat, paler in the middle of the belly.

FEMALE IMMATURE.—Similar to immature male, but duller; not so dark (blackish) on the upperside, and more olive below.

Bill from base (♂ ad.) 20.5–21, tarsus (♂ ad.) 16.5–17.

Males, 72 per cent; females, 28 per cent.

This is another of the interesting cases where the adult female has less red in the plumage than the young one. (See *Myzomela cardinalis nigriventris*, pp. 20, 21.)

	WING	TAIL	BILL	WEIGHT
♂ ad.	64-68(66.2)	42-48(44.6)	16-18(17.2)	12-14(13.1)
♂ imm.	61-67(63.4)	39-43(41.2)		
♀ ad.	57-60(58.5)	36-41(38.2)	16-17(16.2)	10, 10.5, 11
♀ imm.	55, 56, 57	35-37(35.8)		

RANGE.—Northern Solomon Islands (Ysabel, Molakobi, Megapode, Arnavon, Choiseul, Fauro, Bougainville, and Buka Islands).

Birds from Bougainville in the series are rather more olive underneath, without the golden, even reddish-golden tinge of most of the Ysabel birds. However, some specimens are indistinguishable, and the only Buka skin is as reddish golden as the most extreme of the Ysabel specimens. Some of the Bougainville birds have the red patch on the nape rather small, but none of these differences is very constant.

***Myzomela melanocephala* (Ramsay)**

Cinnyris melanocephalus RAMSAY, 1879 (June 5), Nature, XX, p. 125, Savo Island.

Cinnyris (?) *dubia* RAMSAY, 1879 (June 16), Proc. Linn. Soc. N. S. W., IV, p. 83, Savo Island.

Myzomela sharpei OGILVIE-GRANT, 1888, Proc. Zool. Soc. London, p. 197, Pl. x, fig. 3, Guadalcanar Island [descr. of immature].

MALE ADULT.—Forehead, crown, sides of head, ear-coverts, chin and middle of throat glossy black; hind neck blackish olive; back, scapulars, sides of neck, and upper breast rich (golden-) olive; belly, flanks and under tail-coverts pale grayish-olive.

FEMALE ADULT.—Similar to male, but smaller and duller; black on head and throat more restricted, abdomen much lighter.

IMMATURE (male and female).—Similar to adult, but duller; olive colors replaced by ochraceous or cinnamon (-olive), especially on the edges of the wing-coverts, on rump, and lower belly.

Bill from base (♂ ad.) 20-21, tarsus (♂ ad.) 16 mm.

Males, 70.7 per cent; females, 29.3 per cent.

	WING	TAIL	BILL
♂ ad.	64-67(65.6)	42.5-47(45.1)	16.5-18(17.2)
♂ imm.	62-64.5(63.5)	40-43(42.0)	
♀ ad.	58.5-60(59.6)	38-42.5(39.8)	
♀ imm.	57.5, 59	37.5, 38.5	16, 16

RANGE.—Guadalcanar, Beagle Island (W. S. S. E.), Savo (Cock-erell); Florida Island (cf. Nov. Zool., 1901, p. 181, and Ibis, 1892, p. 298).

Myzomela eichhorni

RANGE.—Central group of Solomon Islands.

***Myzomela eichhorni eichhorni* Rothschild and Hartert**

Myzomela eichhorni ROTHSCHILD AND HARTERT, 1901, Nov. Zool., VIII, p. 181, Kulambangra Island.

Myzomela eichhorni interposita ROTHSCHILD AND HARTERT, 1917, Bull. Brit. Orn. Club, XXXVII, p. 38, New Georgia (and Rendova).

MALE ADULT.—Feathers of throat, rump, and upper tail-coverts bright scarlet; rest of plumage more or less greenish olive; upperside dark greenish-olive, feather centers fuscous; head and hind neck fuscous olive; underside lighter, especially middle of abdomen; breast richer olive; sides of throat fuscous olive; wing and tail-feathers fuscous with olive edges.

FEMALE ADULT.—Similar to adult male, but scarlet on rump absent, and on throat duller and more restricted; upperside lighter, more olive and less fuscous; rump cinnamon- or rusty-olive; underside distinctly paler than in male, olive colors mixed with buffy tones; outermost tail-feathers with pale tips.

IMMATURE MALE.—Crown, neck, scapulars, and back fuscous olive, crown darker, partly blackish; forehead somewhat washed with reddish; hind neck lighter; rump and upper tail-coverts cinnamon (-olive); middle of throat with elongated scarlet-red feathers; underside light cinnamon-olive, more grayish on the sides of the throat, more buffy in the middle of the abdomen; wing-coverts edged with olive-cinnamon, wing- and tail-feathers edged with olive; under wing-coverts and inner edges of wing-feathers whitish, axillaries yellowish white.

IMMATURE FEMALE.—Similar to adult female, but more washed with cinnamon, particularly on the rump.

JUVENAL.—The juvenal (nestling) plumage is very dull. It lacks the olive tinge above and underneath, and the scarlet is restricted to a dark reddish-gray spot in the middle of the throat.

Bill from base (♂ ad.) 21–22, tarsus (♂ ad.) 17–17.5.

Males, 69.6 per cent; females, 30.4 per cent.

		WING	TAIL	BILL
Gizo	♂ ad.	69, 70	46, 47	
Kulambangra		69–73(70.6)	46–50(48.0)	17–19(18.6)
New Georgia		68.5–72(70.1)	46–50(48.2)	
Vangunu		71, 71	49, 49	
Rendova		69–72(70.2)	46–50(47.9)	
	♂ imm.	65–69.5(67.8)	43–46(44.6)	18
	♀ ad.	61–65(62.4)	39–44(41.4)	16–18(17.5)

RANGE.—Eastern part of the central group in the Solomon Islands (Gizo, Kulambangra, New Georgia, Vangunu, Rendova, and Tetipari).

Rothschild and Hartert in 1917 separated the birds from New Georgia and Rendova from the typical form as having the red patch on the throat "much more elongated in both sexes, at least 5 mm. longer in the male." Their specimens from New Georgia and Rendova were collected in 1904,

while the typical series from Gizo and Kulambangra was collected in 1901. The difference in the shape of the red throat-patch in the Tring series is undoubtedly due to the different method of preparation in 1901 and 1904, as the differences are not substantiated by the Whitney material.

***Myzomela eichhorni ganongæ*, new subspecies**

TYPE.—No. 220206, Amer. Mus. Nat. Hist.; ♂ ad.; Ganonga Island, British Solomon Islands; October 20, 1927; R. H. Beck and F. P. Drowne.

SUBSPECIFIC CHARACTERS.—General coloration in both sexes intermediate between *eichhorni* and *atrata*; back of male not black, but fuscous olive, darker than in *eichhorni*; underside dull grayish-olive, more blackish toward the breast, without the rich olive tone of *eichhorni* and not blackish as in *atrata*; underneath, the female is very similar to that of *atrata*, only slightly lighter, but above it is fuscous-olive, not fuscous; no red tips to the feathers on the rump.

	WING	TAIL	BILL
6 ♂ ad.	67-69(68.2)	44, 46, 47	17.5-19(18.0)
2 ♀ ad.	59, 60	36, 39	17, 17.5

RANGE.—Ganonga Island, British Solomon Islands.

Dr. Hartert identified two specimens of this new subspecies as *Myzomela eichhorni atrata* (Amer. Mus. Novit., No. 364, p. 10), but with the series of eight specimens at my disposal, the differences (as described above) are very conspicuous.

***Myzomela eichhorni atrata* Hartert**

Myzomela eichhorni atrata HARTERT, 1908, Bull. Brit. Orn. Club, XXI, p. 105, Vella Lavella Island.

DESCRIPTION.—See Hartert (*loc. cit.*, p. 105). The female however, does not always have the "feathers of the rump broadly tipped with red." On the other hand, I have a few females of typical *eichhorni* with some narrow red tips to the feathers of the rump.

		WING	TAIL	BILL
Vella Lavella	5 ♂ ad.	67-70(69.0)	43.5-46(44.6)	17.5, 18
	1 ♂ juv.	61	38	
	4 ♀ ad.	60-63(61.8)	40, 40, 41	
	1 ♀ imm.	61		
Bagga	4 ♂ ad.	69, 69	47, 47	17-18(17.4)
	2 ♀ ad.	62, 63	40	

RANGE.—Vella Lavella and Bagga, British Solomon Islands.

Myzomela nigrita

RANGE.—Numerous subspecies occur in New Guinea and neighboring islands, in the Admiralty Islands, and the Bismarck Archipelago. Only one subspecies lives in the Solomon Islands.

Revision: Stresemann, 1923, Arch. f. Naturg., LXXXIX, fasc. 7, pp. 50, 51. Additional notes: see Meise, 1929, Ornith. Monatsb., XXXVI, p. 84.

***Myzomela nigrita tristrami* Ramsay**

Myzomela Tristrami RAMSAY, 1881 (Sept.), Proc. Linn. Soc. N. S. W., VI, p. 178 [terra typica presently fixed as San Cristobal Island]. [Original description is based on immature bird.]

SUBSPECIFIC CHARACTERS.—Black of plumage dull, not glossy; agrees in size with *ramsayi* Finsch, but has the axillaries and most of the under wing-coverts grayish or blackish, not purely white; no sexual dimorphism, except that the female is smaller, and has a duller, more sooty black.

The immature bird of this race is distinguished by having a dark yellow bill with black tip, its body plumage is black, except for breast and belly where the black is reduced to the feather-tips, while the bases of the feathers are olivaceous gray on the breast, and cinnamon gray on belly and under tail-coverts; in the nestlings plumage the bird is (judging from some molting specimens) probably grayish olive underneath and sooty above.

Bill from base (♂ ad.) 20–21, tarsus (♂ ad.) 17–18.

Males, 61.8 per cent; females, 38.2 per cent.

	WING	TAIL	BILL	WEIGHT
♂ ad.	67–72(69.3)	42–47.5(45.6)	17–19(18.0)	13–16(14.7)
♀ ad.	61.5–66(63.7)	40–46(42.5)	15–16.5(16.1)	11.5, 14
♂ imm.	65.5–68.5(67.2)	44–46(44.8)		12.5
♀ imm.	60–65(62.3)	38–42.5(40.2)		10, 11, 11

RANGE.—San Cristobal and Santa Anna Island, British Solomon Islands. The species has also been recorded from Ugi Island (Ramsay, 1882, Proc. Linn. Soc. N. S. W., VII, p. 27), but was not found there by the Whitney Expedition.

Two specimens from Santa Anna have a few red-edged feathers on the rump. It is doubtful if this can be attributed to hybridization with *pulcherrima*, as no *pulcherrima* have been collected in this locality. Further collecting is necessary to solve this question.

Hartert suspects, after an examination of scanty material, that specimens from Santa Anna are larger than San Cristobal birds (Amer. Mus. Novit., No. 364, p. 9). However, my large series do not bear out his assumption. The wing-length of twelve males from San Cristobal is 67–70 (69.1), while in eleven males from Santa Anna it is 67–72 (69.4). The averages are practically the same.

The species *nigrita* may be divided into two groups: a *nigrita* group living in New Guinea and neighboring islands, and a *pammelæna* group distributed over the Admiralty Islands, the Bismarck Archipelago, and

the Solomon Islands. The subspecies of the *pammelæna* group are characterized by large size (wing in adult males 67-78, against 53-67 in *nigrita*), by grayish instead of white axillaries and under wing-coverts, and by lacking sexual dimorphism. In *nigrita* the females always have a tone of olive in their plumage and a reddish tinge on forehead and cheeks. However, as some forms are somewhat intermediate, I prefer to adopt Stresemann's arrangement (*loc. cit.*, 50, 51), who regards *nigrita* and *pammelæna* as conspecific.